ENGINEERING TOMORROW

Data sheet

Direct-operated 2/2-way solenoid valves
Type EV210BW

EV210BW 1.5, 2, 3, 4.5 & 6 covers a wide range of direct-operated 2/2-way solenoid valves for universal use.
EV210BW is a very robust high performance valve program.This valve type is designed with EPDM seal, lead free dezincification resistant ECO brass for drinking water. It can be used in all kind of tough working conditions in demanding industrial applications:
- For water supply and control
- Dosing application
- Food processing
- Water treatment / Reverse Osmosis

Features and versions:

- For drinking water
- Clip on coil
- Flow range: 0 - 0.7 m^3/h
- Differential pressure 0-10 bar
- Media temperature range 0 – 90 °C
- Ambient temperature: Up to 80 °C
- Coil enclosure: Up to IP67
- Thread connections: G1/8, G1/4 & G3/8
- DN 1.5, 2, 3, 4.5 & 6
- Viscosity: Up to 50 cSt
- Body material in ECO brass (Lead % by weight<0.1%)
- New generation EPDM sealings recommended for drinking water
- EV210BW 1.5, 2, 3, 4.5 & 6 NC ECO brass
- EV210BW 1.5, 2, 3 & 4.5 NO ECO brass

Directives, approvals and certificates

General

In accordance with
- Low Voltage Directive 2014/35/EU
  - EN60730-1
  - EN60730-2-8
- Pressure Equipment Directive 2014/68/EU
- RoHS Directive 2011/65/EU
  - Including amendment 2015/863/EU

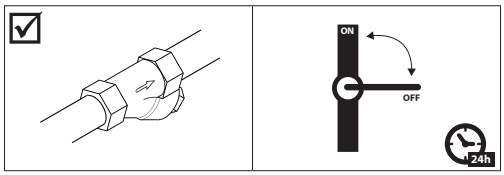
Drinking water approvals

- Valves are certified by RISE, notified body 1002.
  Valid in Denmark and Sweden.
  In accordance with Boverket Building Regulations (BBR 21, 2014-06-17)
  Certificate number SCO155-18
- Valves are certified by SINTEF.
  Valid in Norway.
  In accordance with NKB Product rules nr. 13, pkt. 3.2 – 3.6
  -NT VVS 100, pkt. 6.4.2 & 6.4.8
  -EN ISO 6509
- Inspection by DTI
- Valves are certified by Carso according to ACS guidelines, Circulaire 2002/571.
- Hygenic certificate B-BK-60210-1275/19.
  Issued by Polish National Institute of Public health (PZH).
- Wetted materials in accordance with 4MS (4 member states Germany, Holland, France and UK), DVGW, KTW and W270.

EV210BW
ECO brass valve body, NC

Connection ISO 228/1	Seal material	Orifice size	K_v-value [m^3/h]	Media temperature min. to max. [°C]	Differential pressure min. to max. [bar] /coil type				Code number
					BB/BE AC	BB/BE DC	BG AC	BG DC	
G 1/8	EPDM	1.5	0.08	0 – 90	0 – 10	0 – 10	0 – 10	0 – 10	132U2100
	EPDM	2	0.15	0 – 90	0 – 10	0 – 10	0 – 10	0 – 10	132U2306
	EPDM	3	0.3	0 – 90	0 – 10	0 – 10	0 – 10	0 – 10	132U2308
G 1/4	EPDM	1.5	0.08	0 – 90	0 – 10	0 – 10	0 – 10	0 – 10	132U2106
	EPDM	2	0.15	0 – 90	0 – 10	0 – 10	0 – 10	0 – 10	132U2300
	EPDM	3	0.3	0 – 90	0 – 10	0 – 10	0 – 10	0 – 10	132U3000
	EPDM	4.5	0.55	0 – 90	0 – 10	0 – 4.5	0 – 10	0 –9	132U4406
	EPDM	6	0.7	0 – 90	0 – 4	0 – 2	0 – 6	0 – 4.5	132U4500
G 3/8	EPDM	3	0.3	0 – 90	0 – 10	0 – 10	0 – 10	0 – 10	132U3010
	EPDM	4.5	0.55	0 – 90	0 – 10	0 – 4.5	0 – 10	0 – 9	132U4400
	EPDM	6	0.7	0 – 90	0 – 4	0 – 2	0 – 6	0 – 4.5	132U4502

[1]) It is recommended to use a filter in front of the valve. Recommended filter 50 mesh (297 microns).
[2]) In water applications, exercise the valves at least once every 24 hours, meaning change the state of the valve.
The valve exercise will minimize the risk of the valve sticking due to calcium carbonate, zinc or iron oxide build-up.
[3]) To minimize scaling, and corrosion attack it is recommended that the water passing the valve have the following values:
- Hardness 6-18 °dH to avoid scaling (chalk / lime stone build up).
- Conductivity 50 – 800 µS/cm to avoid brass dezincification and corrosion.
- Above 25°C media temperature avoid stagnant water inside the valve to avoid dezincification and corrosion attack.



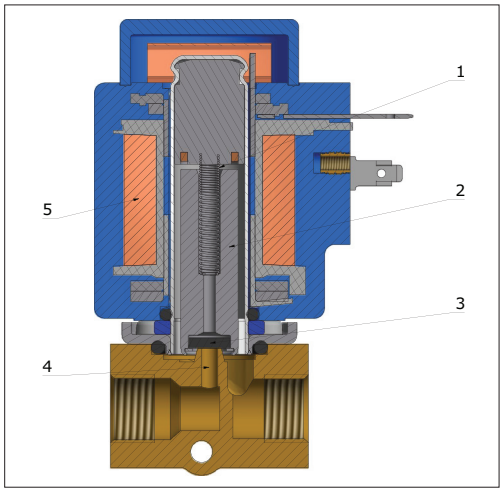
Technical data, NC

Type	EV210BW 1.5	EV210BW 2	EV210BW 3	EV210BW 4.5	EV210BW 6
Time to open [ms] [1]	10	10	20	20	20
Time to close [ms] [1]	20	20	20	20	20

[1] The times are indicative and apply to water. The exact times will depend on the pressure conditions.

Installation	Vertical solenoid system is recommended.		
Max. working pressure	NC	DN 1.5 - 4.5 DN 6	0 - 10 bar 0 - 4 bar
Max. test pressure	EV210BW	15 bar	
Ambient temperature	BB AC/DC	Up to 50 °C	
Viscosity	Max. 50 cSt		
Materials	Valve body	ECO brass	CW724R
	Armature	Stainless steel	W.no. 1.4105 / AISI 430FR
	Armature tube	Stainless steel	W.no. 1.4306 / AISI 304L
	Armature stop	Stainless steel	W.no. 1.4105 / AISI 430FR
	Springs	Stainless steel	W.no. 1.4310 / AISI 301
	O-rings	EPDM	
	Valve plate	EPDM	
	Diaphragm	EPDM	

Function, NC



Pos. no.	Description
1	Closing spring
2	Armature
3	Valve plate
4	Valve orifice
5	Coil

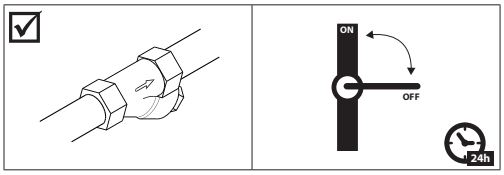
Coil voltage disconnected (closed):
When the voltage to the coil (5) is disconnected, the armature (2) with the valve plate (3) is pressed down against the valve orifice (4) by the closing spring (1) and the medium pressure.
The valve will be closed for as long as the voltage to the coil is disconnected.

Coil voltage connected (open):
When voltage is applied to the coil(5), the armature (2) with the valve plate (3) is lifted clear of the valve orifice (4).
The valve is now open for unimpeded flow and will be open for as long as there is voltage to the coil.

EV210BW
ECO brass valve body, NO

Connection ISO 228/1	Seal material	Orifice size	K_v-value [m^3/h]	Media temperature min. to max. [°C]	Differential pressure min. to max. [bar] /coil type		Code number
					BB/BE AC/DC	BG AC/DC	
G 1/8	EPDM	1.5	0.08	0 – 90	0 – 10	0 – 10	132U2101
	EPDM	2	0.15	0 – 90	0 – 10	0 – 10	132U2307
	EPDM	3	0.3	0 – 90	0 – 5	0 – 5	132U3009
G 1/4	EPDM	1.5	0.08	0 – 90	0 – 10	0 – 10	132U2107
	EPDM	2	0.15	0 – 90	0 – 10	0 – 10	132U2301
	EPDM	3	0.3	0 – 90	0 – 5	0 – 5	132U3001
	EPDM	4.5	0.55	0 – 90	0 – 2	0 – 2	132U4407
G 3/8	EPDM	3	0.3	0 – 90	0 – 5	0 – 5	132U3011
	EPDM	4.5	0.55	0 – 90	0 – 2	0 – 2	132U4401

[1]) It is recommended to use a filter in front of the valve. Recommended filter 50 mesh (297 microns).
[2]) In water applications, exercise the valves at least once every 24 hours, meaning change the state of the valve.
The valve exercise will minimize the risk of the valve sticking due to calcium carbonate, zinc or iron oxide build-up.
[3]) To minimize scaling, and corrosion attack it is recommended that the water passing the valve have the following values:
- Hardness 6-18 °dH to avoid scaling (chalk / lime stone build up).
- Conductivity 50 – 800 µS/cm to avoid brass dezincification and corrosion.
- Above 25°C media temperature avoid stagnant water inside the valve to avoid dezincification and corrosion attack.



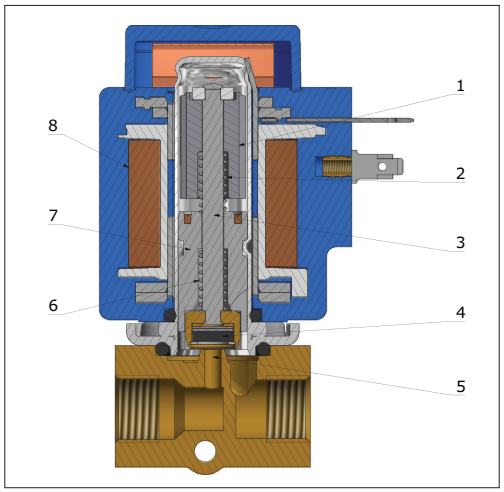
Technical data, NO

Type	EV210BW 1.5	EV210BW 2	EV210BW 3	EV210BW 4.5
Time to open [ms] [1]	10	20	20	20
Time to close [ms] [1]	20	20	20	20

[1] The times are indicative and apply to water. The exact times will depend on the pressure conditions.

Installation	Vertical solenoid system is recommended.		
Max. working pressure	NO	DN 1.5 & 2 DN 3 DN 4.5	0 - 10 bar 0 - 5 bar 0 - 2 bar
Max. test pressure	EV210BW	15 bar	
Ambient temperature	BB AC/DC	Up to 50 °C	
Viscosity	Max. 50 cSt		
Materials	Valve body	ECO brass	CW724R
	Armature	Stainless steel	W.no. 1.4105 / AISI 430FR
	Armature tube	Stainless steel	W.no. 1.4306 / AISI 304L
	Armature stop	Stainless steel	W.no. 1.4105 / AISI 430FR
	Springs	Stainless steel	W.no. 1.4310 / AISI 301
	O-rings	EPDM	
	Valve plate	EPDM	
	Diaphragm	EPDM	

Function, NO

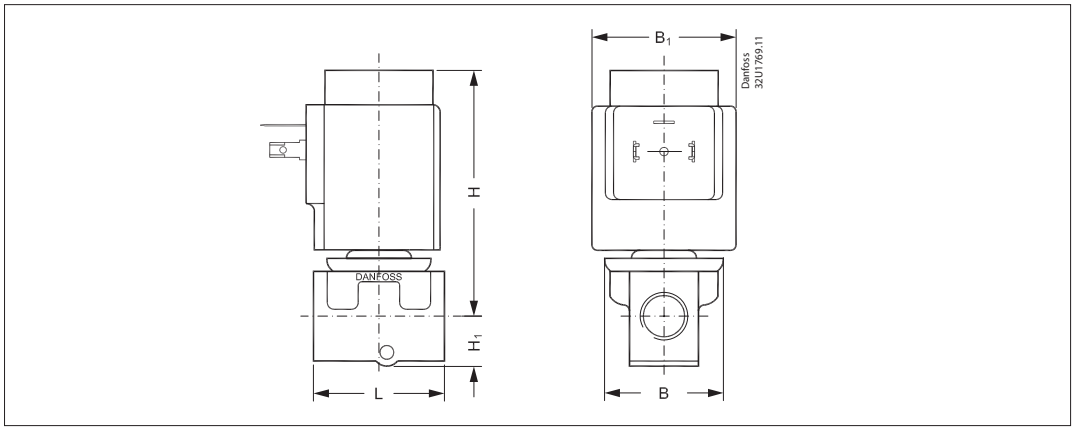


Pos. no.	Description
1	Armature
2	Opening spring
3	Spindle
4	Valve plate
5	Valve orifice
6	Closing spring
7	Fixed base
8	Coil

Coil voltage disconnected (valve is open):
When the voltage to the coil (8) is disconnected, the valve orifice (5) is open, the opening spring (2) lifting the spindle (3) with the valve plate (4) clear of the orifice.
The valve will be open for as long as the supply voltage to the coil is disconnected.

Coil voltage connected (valve is closed):
When voltage is applied to the coil (8), the magnetic field draws the valve,s armature (1) down to touch the fixed base(7). The spindle (3) with the valve plate (4) is now pressed down against the valve orifice (5) by the closing spring (6).
The valve will be closed for as long as there is voltage to the coil.

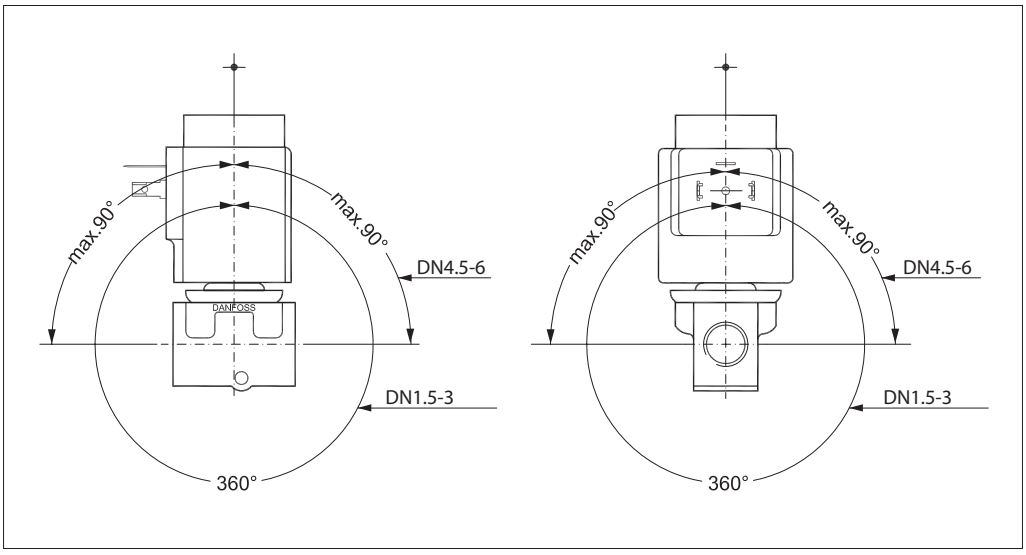
Dimensions



Dimension and weight: ECO brass NC and NO

Type	Weight gross valve body without coil [kg]	L [mm]	B [mm]	B_1 [mm] / Coil type		H [mm]	H_1 [mm]
				BB / BE	BG		
EV210BW 1.5	0.15	35	34	46	68	12	70
EV210BW 2	0.15	35	34	46	68	12	70
EV210BW 3	0.20	38	34	46	68	11	70
EV210BW 4.5	0.20	38	34	46	68	11	70
EV210BW 6	0.22	46	34	46	68	16	73

Mounting angle



BB, clip on

- Enclosure:
  - IP00 version with DIN 43650 A spade connectors
  - IP20 version with protective cap
  - IP65 version with mounted cable plug

In accordance with:

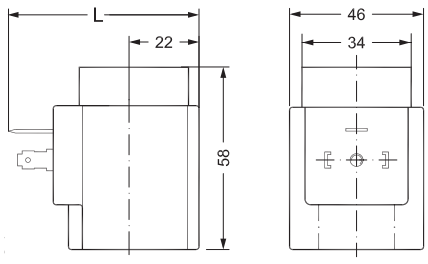
- RoHS Directive 2011/65/EU
  - Including amendment 2015/863/EU
- Low Voltage Directive 2014/35/EU
  - EN60730-1
  - EN60730-2-8

Type	Tambient	Supply voltage	Voltage variation	Frequency	Control	Power consumption		Code no.
	[°C]	[V]		[Hz]		[W]	[VA]	
BB024AS	-40 – 80	24	-15%, +10%	50	NO, NC	11	19	018F7358
BB230AS	-40 – 80	220 - 230	-15%, +10%	50	NO, NC	11	19	018F7351
BB012DS	-40 – 50	12	±10%	DC	NC, NO, UN (Latching)	13	–	018F7396
BB024DS	-40 – 50	24	±10%	DC	NC, NO, UN (Latching)	16	–	018F7397

Technical data

Design	In accordance with VDE 0580
Insulation of coil windings	Class H according to IEC 85
Connection	Spade connector in accordance with DIN 43650 form A
Enclosure, IEC 529	IP00 with spade connector, IP20 with protective cap, IP65 with cable plug
Duty rating	Continuous
Plug type	Cable plug (042N0156)

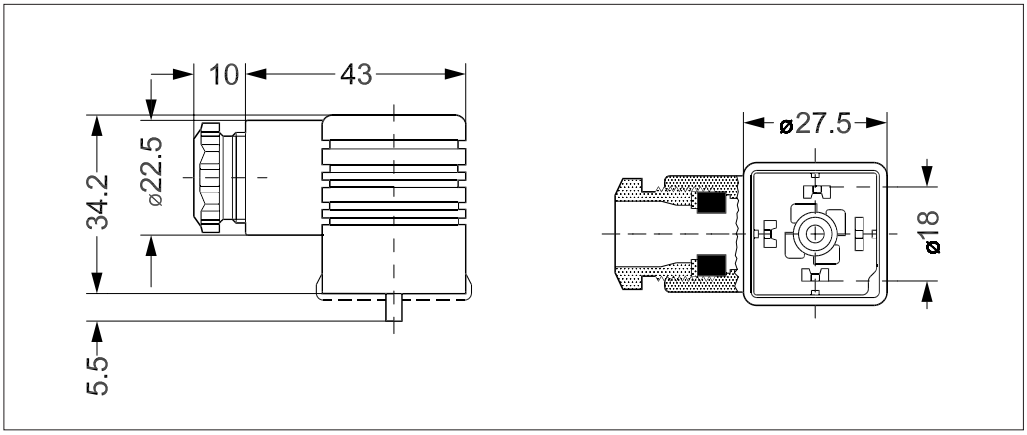
Dimensions and weight



L without cable plug	L with protective cap	L with cable plug	Weight
[mm]	[mm]	[mm]	[kg]
62	77	85	0.24

Accessories:
Cable plug

Type, Form A	Code no.
GDM 2011 (grey) cable plug according to DIN 43650-A PG11	042N0156



EEC Electronic coil controller

EEC electronic coil controller for solenoid valves,

The EEC gives the coil a short over-boost, and controls the armature speed:

- Low power consumption (holding power: 4 W)
- Reduced noise during operation
- Increased MOPD compared to standard coils
- Increased lifetime of the solenoid valve
- Enclosure:
  - IP67 version

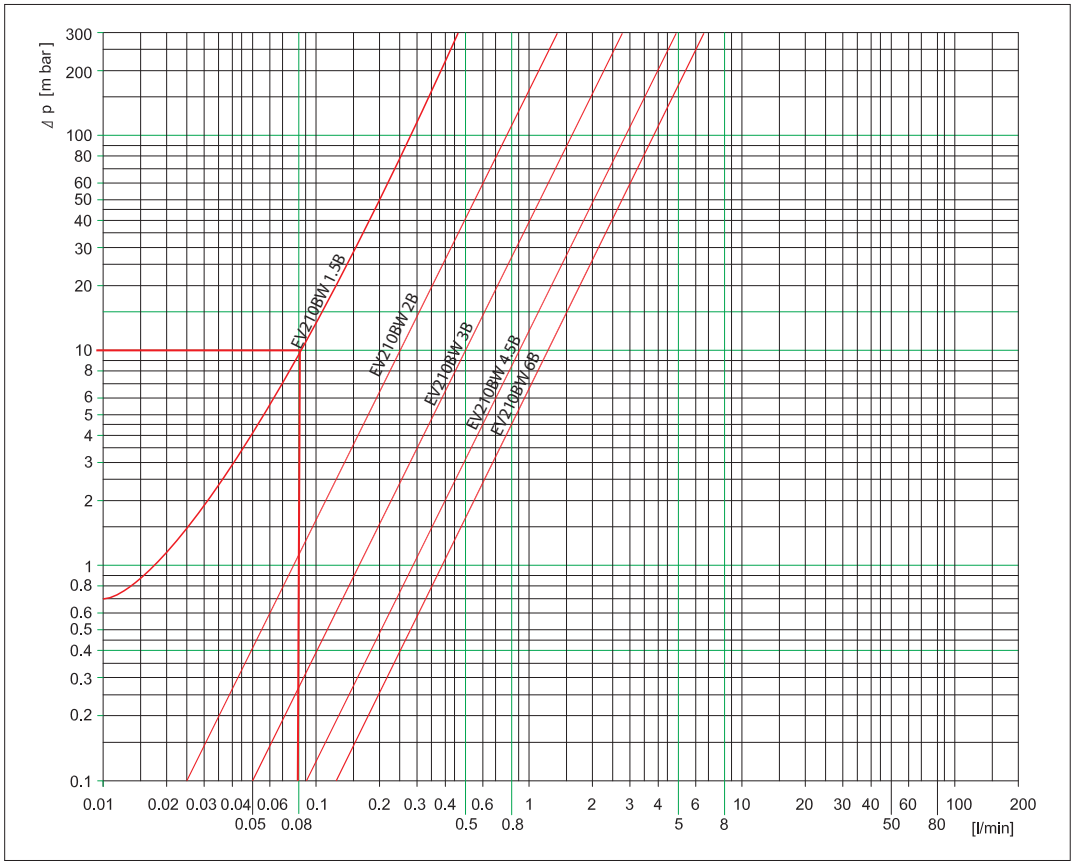
In accordance with:

- RoHS Directive 2011/65/EU
  - Including amendment 2015/863/EU
- Low Voltage Directive 2014/35/EU
  - EN60730-1
  - EN60730-2-8

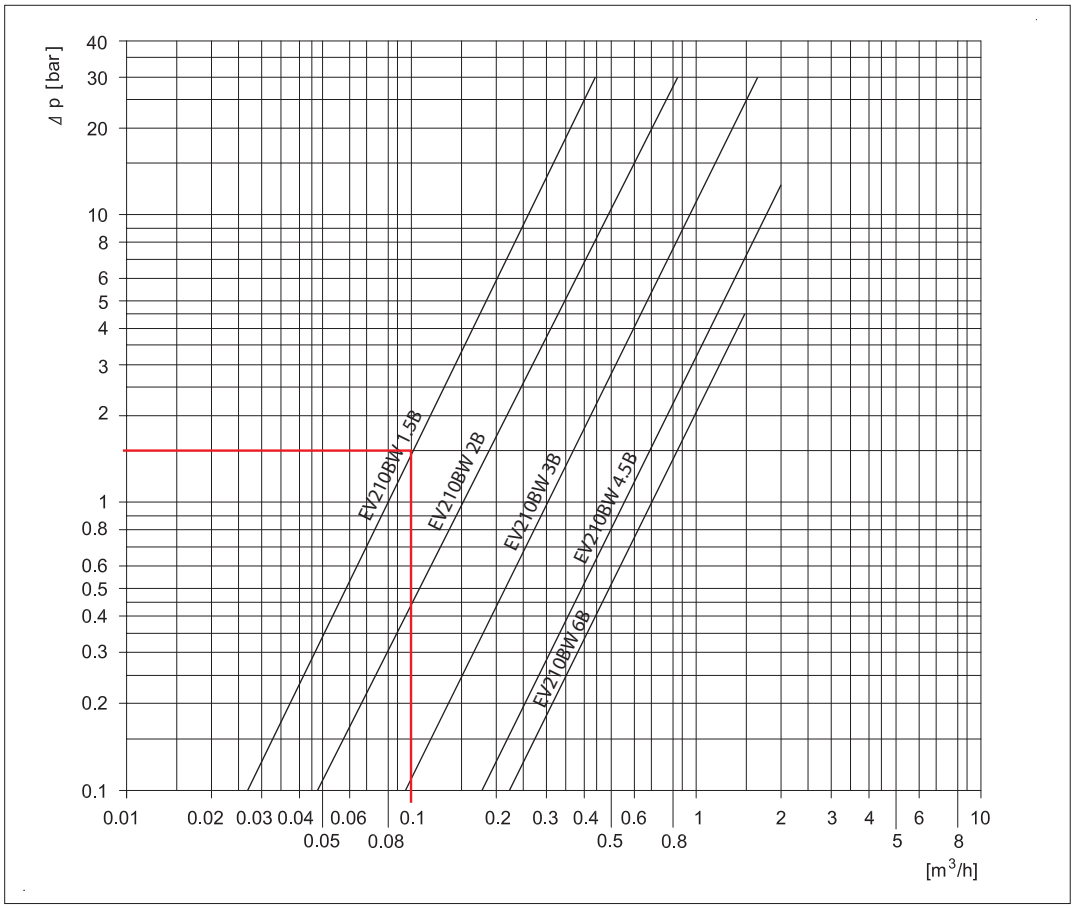
Type	Tambient	Supply voltage	Voltage variation	Frequency	Control	Power consumption	Code no.
	[°C]	[V]		[Hz]		[W]	
BE240CS	-25 – 55	208 - 240	±10%	60	NC, NO	4	018F6783
		208 - 240	±10%	50	NC, NO	4	

Capacity diagrams:

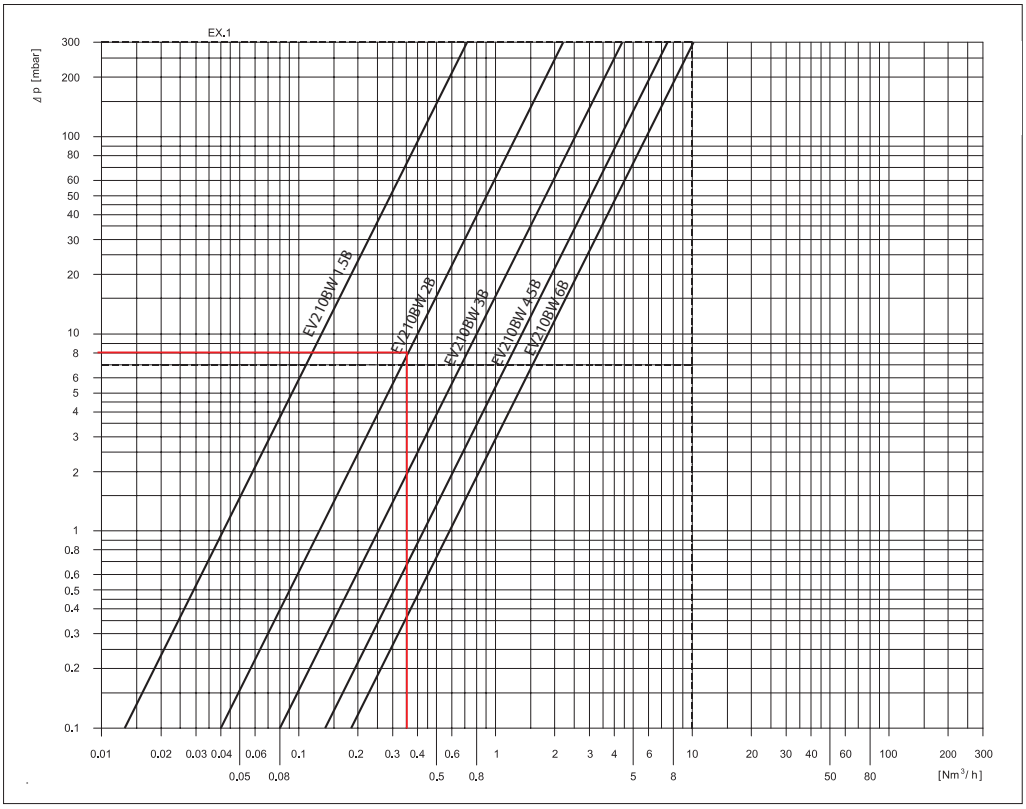
Example, water at low pressure:
Capacity for EV210BW 1.5B at differential pressure of 10 mbar.
Approx. 0.08 l / min



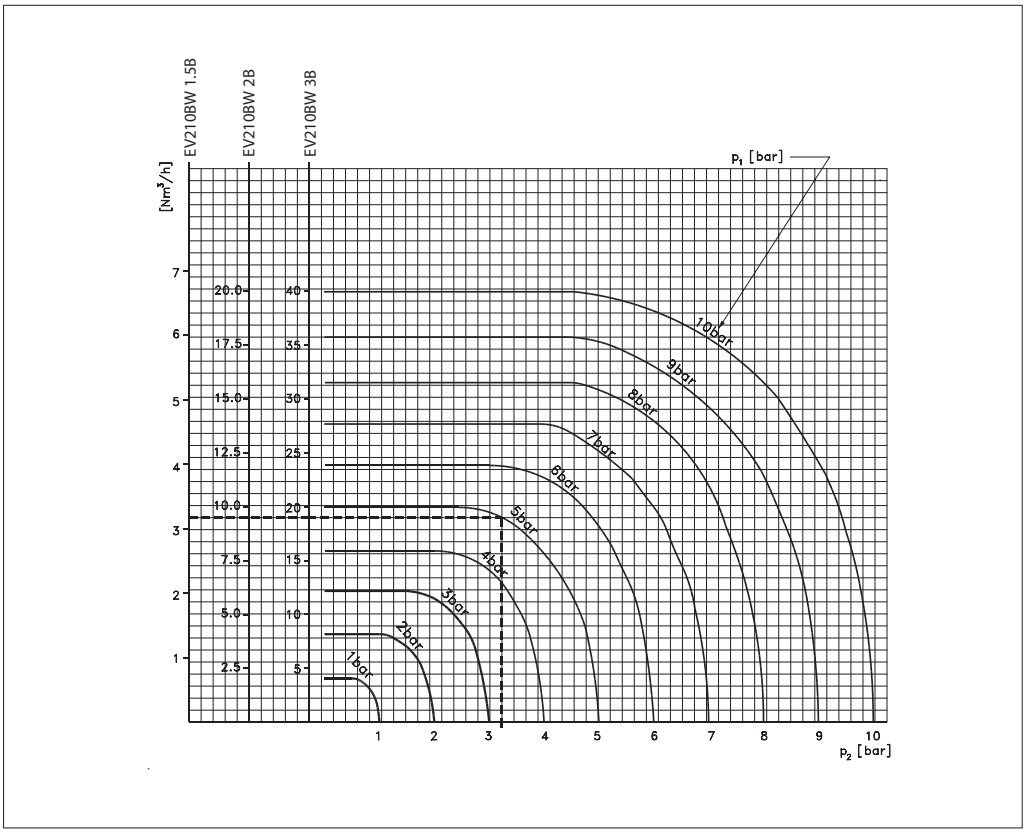
Example, water at higher pressure:
Capacity for EV210BW 1.5B at differential pressure of 1.5 bar.
Approx. 0.1 m^3 / h



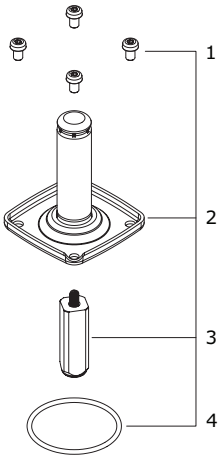
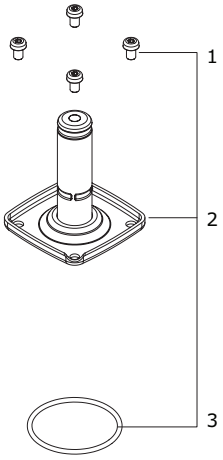
Example, air at lower pressure:
Capacity for EV210BW 2B at differential pressure of 8 mbar. Approx. 0.35 Nm³ / h



Example, air at higher pressure :
Capacity for EV210BW 2B at inlet pressure (p1) of 5 bar and outlet pressure (p2) of 3.25 bar.
Approx. 9 Nm³ / h



Spare part kits DN 1,5 to DN 6

Type	Actuator kit NC	Actuator kit NO
EV210BW DN 1,5 G 1/8	132U8002	132U8003
EV210BW DN 2 G 1/8	132U8002	132U8003
EV210BW DN 3 G 1/8	132U8002	132U8003
EV210BW DN 1,5 G 1/4	132U8002	132U8003
EV210BW DN 2 G 1/4	132U8002	132U8003
EV210BW DN 3 G 1/4	132U8002	132U8003
EV210BW DN 4,5 G 1/4	132U8002	132U8003
EV210BW DN 6 G 1/4	132U8006	–
EV210BW DN 3 G 3/8	132U8002	132U8003
EV210BW DN 4,5 G 3/8	132U8002	132U8003
EV210BW DN 6 G 3/8	132U8006	–
		
	1. 4x Screw 2. Armature tube 3. Armature + Spring 4. O-ring	1. 4x Screw 2. NO Unit 3. O-ring